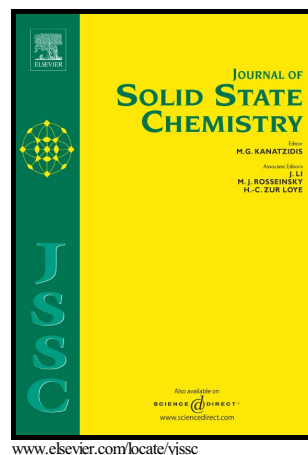


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# Three Microporous Zn Coordination Polymers Constructed by 3,4,5-Tris(carboxymethoxy)benzoic Acid and 4,4'-bipyrdine: Structures, Topologies, and Luminescence

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## Abstract

Three microporous Zn coordination polymers,  $[\text{Zn}_3(\text{OH})_2(\text{TCBA})(4,4'\text{-bpy})]\cdot 5.5\text{H}_2\text{O}$  (**1**),  $[\text{Zn}_3(\text{OH})_2(\text{TCBA})(4,4'\text{-bpy})_{1.5}]\cdot 5\text{H}_2\text{O}$  (**2**), and  $[\text{Zn}_4(\text{TCBA})_2(4,4'\text{-bpy})_2(\text{H}_2\text{O})_8]\cdot 11\text{H}_2\text{O}$  (**3**) ( $\text{H}_4\text{TCBA}$  = 3,4,5-tris(carboxymethoxy)benzoic acid, 4,4'-bpy = 4,4'-bipyrdine), have been hydrothermally synthesized and structurally characterized. **1** presents an uncommon 2-nodal (4,10)-connected network with  $\{3\cdot 4^5\}_2\{3^4\cdot 4^{12}\cdot 5^{10}\cdot 6^{14}\cdot 7^3\cdot 8^2\}$  topology; **2** can be described as a 2-nodal (3,8)-connected **tfz-d** net with the symbol of  $\{4^3\}_2\{4^6\cdot 6^{18}\cdot 8^4\}$ , both networks are constructed from hexameric  $[\text{Zn}_6(\mu_3\text{-OH})_4]^{8+}$  clusters. While **3** shows an interesting 4-nodal (3,3,3,4)-connected network with  $\{8\cdot 10\cdot 12\}_2\{8\cdot 10^2\}_2\{8^4\cdot 10\cdot 12\}$  topology. Complexes **1–3** all own 3-D frameworks with 1-D channels, and in **1–3** lattice and/or coordinated water molecules occupy the channels, especially in **3** Zn-bipy chains reside in the channels together with water molecules. Double helical chains can be observed in complex **2**; and single helix chains exist in complexes **1** and **3**. Furthermore, the thermal stabilities and photophysical properties of complexes **1–3** were also investigated.

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